



Automating the Simulation Object Model (SOM) Generation Process

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Agenda



- **Background**
- **Standard SOM development procedures**
- **SOM Development issues**
- **Automated SOM procedures**
- **Automated SOM benefits**
- **Conclusions**



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Why Auto-SOM

- **Issue:**
 - **Simulation Object Models (SOMs) often do not accurately depict the capabilities of a model**
 - **Resources wasted on repeated SOM updates**
- **Goal:**
 - **Rapidly develop a SOM that accurately reflects the model's true functionality**
- **Solution:**
 - **Leverage existing technology to develop a flexible automated SOM generation technique that derives the SOM from the models source code**



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SOM Development Procedure



- Developed class design in Rational Rose from Janus source code
 - Class design supported Warrior source code development
- SOM developers converted RR diagrams to OMT formatted files using OMDT
- Used OMT files as basis for Warrior SOM
- Used GOTS/COTS products to modify SOM



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SOM Development Issues



- **Code implementation resulted in numerous changes to class design**
 - Created mismatch between SOM representation and actual Warrior functionality
 - Required changes to RR diagrams/SOM to match new implementation
 - Interrupted code writers to identify design changes

Bottom line: Incurred project delays to develop accurate SOM representation



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HLA Warrior Project



- Re-hosting a legacy simulation with modern technologies and open architecture
- Janus 6.3 functionality (+ improved LOS & CSS functionality)
- PC-based using WinNT
- Object-oriented C++ based source code
- State of the art GUIs (Vision XXI)
- Cross platform capable
- Modular terrain architecture
- DIS & HLA compliant



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Analysis Federate Project



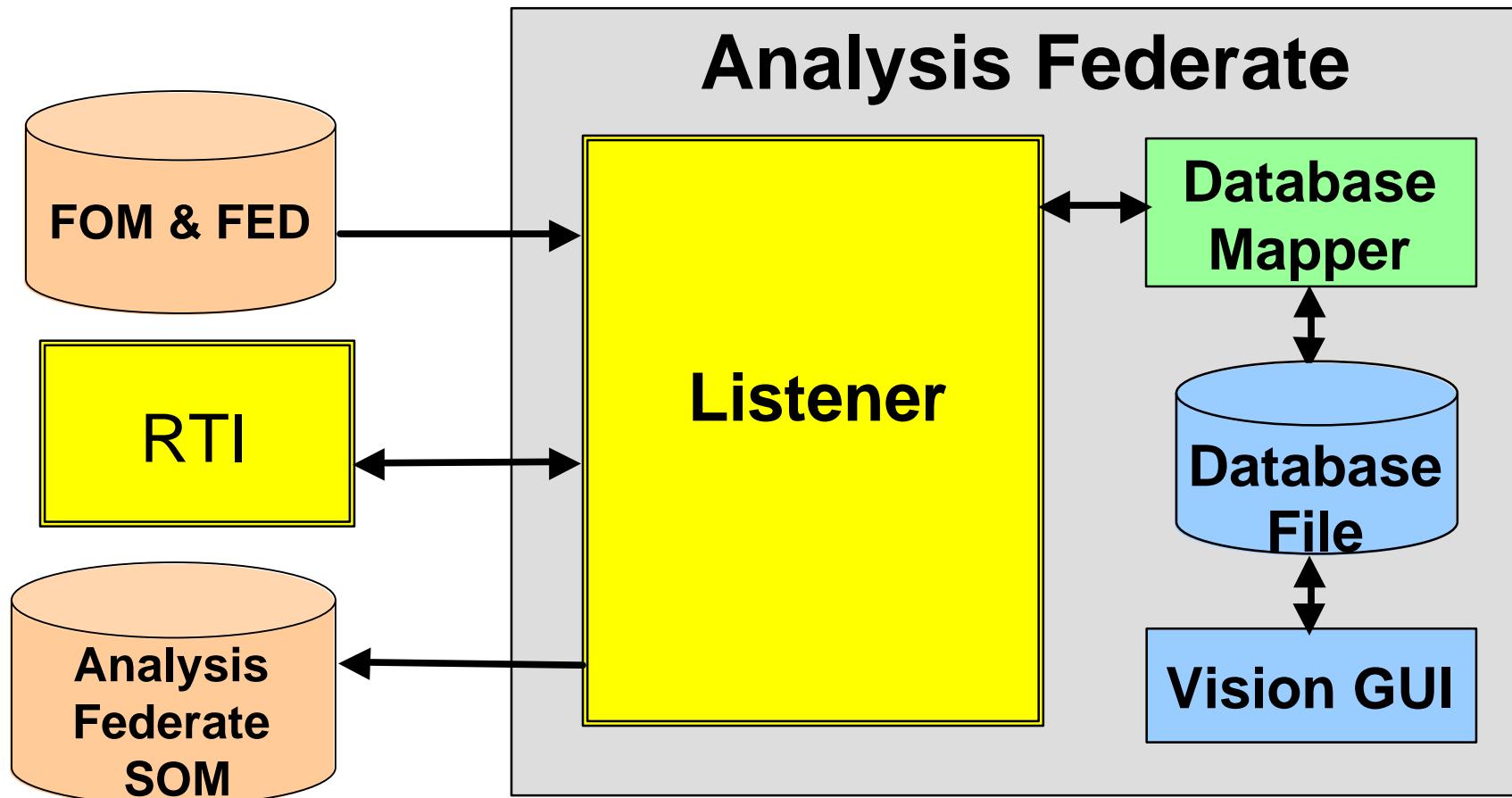
- **HLA federate designed to support data collection and analysis**
- **Allows analysts to review collected data during runtime for analysis purposes**
- **State of the art GUI provides easy data access, analysis, presentation and transfer**
- **Can participate in any HLA federation**
- **Automatically generates unique SOM for each federation joined**



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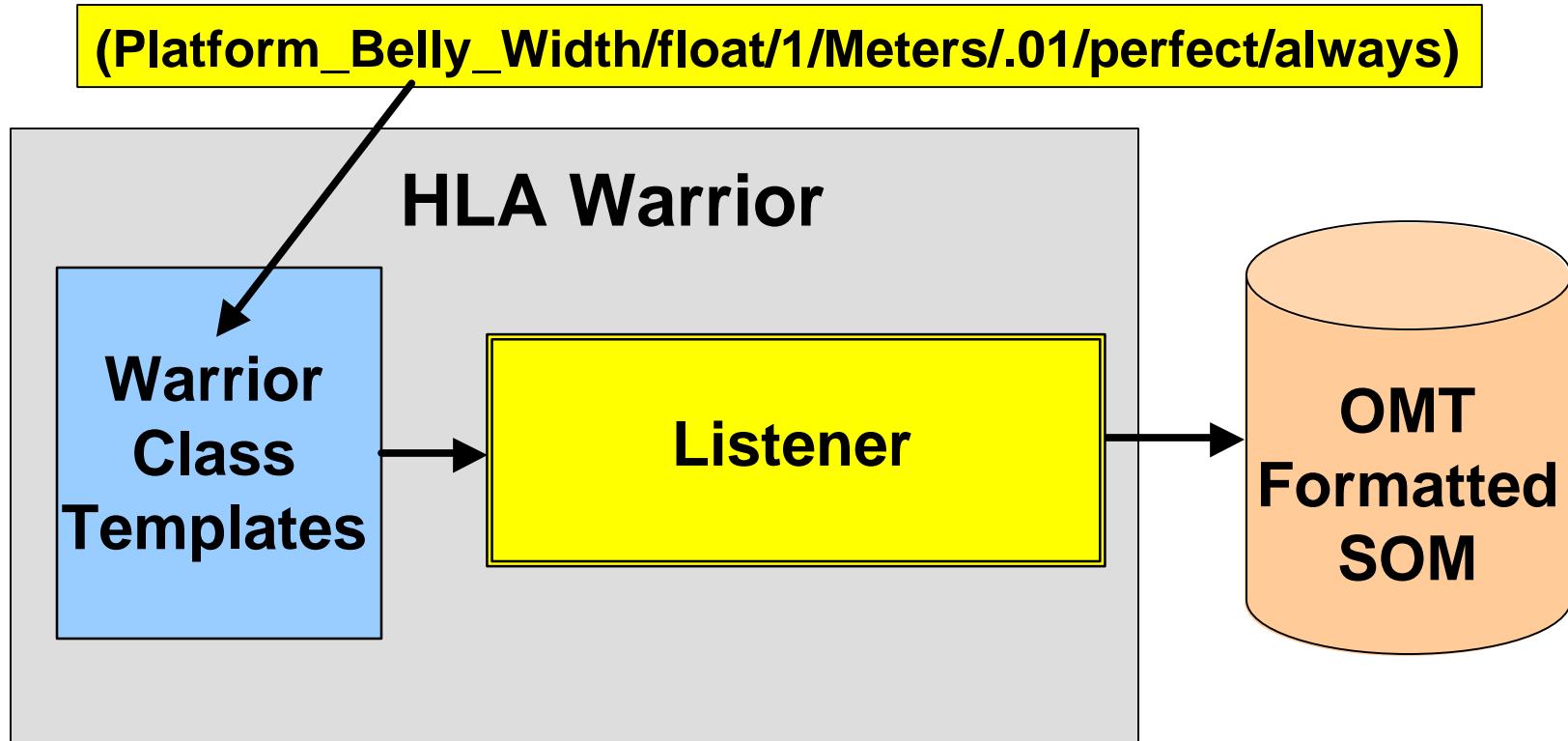
Analysis Federate Auto-SOM Design



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HLA Warrior Auto-SOM Generation



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Auto-SOM Benefits



- Ensures SOM accurately represents model's implementation
- Facilitates rapid updates to SOM when the model is enhanced
- Reduces up front SOM development time
- Allows SOM developer to monitor implementation using OMT tools
- Supports V&V



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Conclusions



- Generating SOM objects and attributes is fairly straightforward
- Capturing interactions and parameters is somewhat problematic
- Bottom line: Will not be able to derive a complete SOM
- Supports future simulations by providing cost effective method for SOM development
- Is another step towards evolving HLA



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Questions



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